SITE INVESTIGATION
WORK PLAN

Ruffolo Property
2226 and 2930 75th Street
Kenosha, WI

BRRTS No. 03-30-590488
Facility ID: 230228460

HYDE ENVIRONMENTAL, INC.

"I, James Lindemann, hereby certify that I am a Hydrogeologist, as that term is defined in s. NR 712.03 (3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

James C. Lindemann, Hydrogeologist	December 12, 2022 Date

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Ruffolo Property
2926 & 2930 75th St.
Kenosha, WI

1.0 OBJECTIVES

This Work Plan has been prepared by Hyde Environmental, Inc. (Hyde) for the Ruffolo Property at 2926 and 2930 75th St., Kenosha, WI (Site). The objective of the Work Plan is to identify methods and materials to be used to define the source(s), magnitude, and extent of the impacts of petroleum and chlorinated volatile organic compounds (CVOCs) to the environment, to the extent practicable.

This Work Plan has been completed such that the proposed work meets the requirements of the Wisconsin Administrative Code (WAC) ch. NR 716 Site Investigation requirements and specially meets the requirements of WAC ch. NR 716.07 and WAC ch. NR 719.09. The work proposed within this Work Plan shall be completed within 90 days of the submittal of this Work Plan to the Wisconsin Department of Natural Resources (WDNR), as required by WAC ch. NR 716.11 (2g).

2.0 SITE INFORMATION

2.1 Responsible Party and Site Location

The Site address is 2926 and 2930 75th St., Kenosha, WI. It is within the Southwest quarter (SW ¼) of the Southeast (SE ¼) of Section 1, Township 1 North, Range 22 East in the City of Kenosha, Kenosha County, WI. The Site location and local topography are shown on Figure 1.

The responsible party contact is:

Ralph Ruffolo
2926 75th Street
Kenosha, WI 53143

Phone: (262) 945-0635
rjr.ruffolo@gmail.com

The consultant contact is:

Robert Thomson, P.G.
Hyde Environmental, Inc.
W175N11163 Stonewood Dr., Ste. 110
Germantown, WI 53022

Phone: (262) 250-1226
rthomson@hyde-env.com

2.2 Site Background/History

The Site has been owned by Mr. Ralph Ruffolo since approximately 1986. Mr. Ruffolo currently operates a bicycle and skateboard shop on the Site. A landscape company leases land from Mr. Ruffolo to store vehicles and outdoor equipment. They maintain a tent to cover salt for use in their winter snow removal operations, on a vegetated part of the Site, near the northeast corner. The remaining parts of the Site are asphalt and concrete-paved, and serve as a parking lot for the bicycle and skateboard shop.

The Site is surrounded by the following:

- East: Gas station
- West: Auto repair garage
- South: Pizza shop / Family Video store
- North: Physical therapy center and trucking and distribution facility

The nearest residential building is a single-family home approximately 100 feet northwest of the Site limits.

Historical uses of the Site and nearby areas, as observed in a review of Sanborn Fire Insurance (Sanborn) maps, shows the eastern part of the Site was occupied by a combined

residence and filling station prior to 1949. The remainder of the Site was undeveloped. The filling station contained three (3) underground storage tanks (USTs) identified as containing gasoline. An adjacent property directly north of the gas station contained an auto repair garage; while nearby properties just north and west of the Site contained two (2) car repair shops, a private garage, an auto painting garage, a tin shop, and a cleaning machine factory. A commercial laundry was identified on the northwest corner of 30th Ave and 75th Street. A lumber yard was directly south of the Site. A railway, likely used by street cars, bordered the Site to the east. A color copy of part of the 1949 Sanborn map is provided as an attachment.

A 1969 Sanborn map (black and white) depicts two (2) buildings with a common wall, on the west side of the Site. These are the same single-story buildings that are currently in use by the bike and skateboard shop on-Site. Mr. Ruffolo has indicated that the west building was built in the 1950s, while the east building was built in 1963. The structures share a common wall/footing in the center of the building.

City directory listings identified the east building (2930 75th St.) to be used by Leo Walkowski and Sons as a tree, lawn, and garden center from at least 1954 until after 1983. The west building (2926 75th St.) was first identified in the city directory records as Southport Rigging, in 1988. A small, single-story building observed in the same location as the filling station (less the attached dwelling) was depicted on the east side of the Site in a 1969 Sanborn map. The auto repair facility identified on the 1949 Sanborn map, just north of the east side of the Site, was present on the 1969 map, and labeled as a lawnmower repair shop. The shop adjacent to the west side of the Site remained listed as a car repair shop. Small buildings north of the alley are identified on this map, in order from south to north, as an autobody repair and painting shop, a machine shop, and a tin shop. The commercial laundry on the west side of 30th Ave. and lumber yard on the south side of 75th Street were also depicted on the 1969 Sanborn map.

As part of a pending real estate transaction, several *Recognized Environmental Conditions (RECs)* were identified in a Phase I Environmental Site Assessment (ESA) report (June 9, 2022) commissioned by the potential buyer and the Small Business administration (SBA). They included the following:

- *Prior use as a gasoline filling station with unknown status of three (3) gasoline underground storage tanks.*

- *Potential releases of petroleum products, solvents, and other vehicle repair associated chemicals from neighboring properties.*

A Phase II ESA was subsequently commissioned by Mr. Ruffolo, at the request of the potential buyer. The work centered on the former gasoline USTs and the potential for vapor intrusion (VI) inside the building.

The results of the Phase II ESA show one soil sample collected near the former UST system exceeded the WAC ch. NR 720 Soil-to-Groundwater Residual Contaminant Levels (RCLs) for 1,2,4-and 1,3,5-trimethybenzene (combined); ethylbenzene; xylenes, total; naphthalene; and lead. A groundwater sample, collected from a non-compliant WAC ch. NR 141 temporary monitoring well in the same boring, contained chrysene and lead at concentrations that exceeded their respective WAC ch. NR 140 Groundwater Quality Enforcement Standards (ESs). The sample also contained 1,2,4-and 1,3,5-trimethybenzene (combined) and naphthalene, at concentrations that exceeded their respective WAC ch. NR 140 Groundwater Quality Preventive Action Limits (PALs). A GPR survey of the former UST area did not reveal residual USTs, but did outline previously disturbed deposits of the former UST system.

Based on these findings, a copy of the Phase II ESA report was submitted to the WDNR on August 16, 2022, along with the notification of a hazardous substance discharge.

A sub-slab VI investigation, completed inside the shop, demonstrated the results exceeded the Wisconsin Small Commercial Vapor Risk Screening Level (VRSL) - Sub-Slab for trichloroethylene (TCE). Additional sampling and immediate actions were completed, separate from this Work Plan, as requested by the WDNR. A VI investigation report was submitted through the WDNR portal on November 10, 2022. The source(s) of the TCE and the extent of impacts were not determined by the VI sampling.

2.5 Geology/Hydrogeology

The Site is located on relatively level ground, at a nominal elevation of approximately 626 feet above mean sea level (ft msl). It is a mixed used neighborhood consisting of commercial establishments, industry, and residences.

According to the United States Department of Agriculture (USDA), the soil on Site and nearby areas are *Pella silt loam, 0 to 2 percent slopes*. These soils are silty glaciofluvial deposits lying over calcareous deposits and/or calcareous loamy till. The typical profile of the Pella silt loam soil is a silt loam in the upper 11 inches, a silty clay to 38 inches, and a stratified loamy sand to silty clay loam to 79 inches.

The unconsolidated materials observed in the five (5) borings advanced on the east side of the Site during the Phase II ESA generally included approximately one foot of loose gravel, covering between 4 and 8 feet of fill. The fill consisted of topsoil, clay or sand containing brick fragments, gravel, and asphalt. The thickest layer of fill was observed where the USTs were likely to have been previously buried. Below the fill, the native unconsolidated materials consisted of sand. Wet samples, generally indicating the presence of the water table, were observed between 6-and 8-feet below grade (bg).

The estimated direction of shallow groundwater flow, based on a completed investigation of an Amoco gas station located approximately ½ mile east of the Site at 2528 75th St., was

north-northwesterly. Local shallow groundwater conditions; however, are likely to vary from that direction. Regionally, deeper groundwater is expected to flow toward Lake Michigan, which is approximately 3.3 miles east of the Site.

Based on published maps, the thickness of unconsolidated glacial deposits on Site ranged from 100 to 150 feet deep. They overlie a Silurian bedrock described as Racine formation dolomite. This is a medium to coarse-grained, thin to thick-bedded, very light to light gray; fossiliferous rock.

3.0 INVESTIGATIVE METHODS

Based on the Phase I and II ESA findings, we propose to drill borings and install two-inch-diameter, ch. NR 141-compliant groundwater monitoring wells and temporary wells for the collection of unconsolidated samples and groundwater samples, to characterize the magnitude and extent of impacts to the affected media.

3.1 Ground-Penetrating Radar

A ground-penetrating radar (GPR) will be used to evaluate the absence/presence of buried objects including utilities, footings, excavated areas, USTs, etc., that may remain in place at the Site. The GPR consists of a cart-mounted unit, wheeled by the operator, across the area to be scanned. The GPR unit transmits pulses of ultra-high frequency radio waves into the ground through a transducer. The radio waves contact buried objects with differing electrical conductivities and dielectric constants and return signals to the surface. The GPR collects the returned signals, the travel times of the signals are processed, and the voltage peaks, which are plotted on a screen and reviewed by the operator, who interpreted the real-time responses. This allows placement of borings/wells in appropriate sampling locations to evaluate Site conditions.

3.2 Investigation of Unconsolidated Deposits

Seven (7) borings will be advanced using a direct-push sampler (Geoprobe®) for the collection of samples of unconsolidated materials. The proposed boring locations on the Site are depicted in Figure 2. Six (6) of the borings will be advanced east of the building. The remaining boring will be advanced near the northwest corner of the Site, to evaluate the potential source(s) of the TCE impacts identified inside the building during the sub-slab VI investigation. The locations of the borings/wells may be adjusted in the field, based on Site observations, GPR findings, and surface obstructions.

The borings will be advanced using a track-mounted drilling rig, and will be continuously sampled to approximately 15 feet bg. Unconsolidated samples will be collected in 5-foot-long, clear PVC sleeves that are pneumatically driven into the ground inside a steel casing and shoe. Unconsolidated materials collected from the borings will be field-screened at 2.5-foot intervals to check for the presence of volatile organic compound (VOC) impacts, using a photoionization detector (PID).

Based on the results of the field screening, one (1) to two (2) unconsolidated samples will be collected from each boring. Unconsolidated samples will be collected from the following: 1) the sampling interval with the highest PID reading from the upper 4 feet of the boring, and 2) the interval with the highest PID reading exceeding one part per million (ppm) from below 4 feet (even if the sample is collected in the aquifer matrix). In the event no PID reading exceeds one ppm, a sample will only be collected at approximately 3-4 feet bg.

Samples of unconsolidated materials will be analyzed for polycyclic aromatic hydrocarbons (PAHs), using U.S. EPA Method 8270D; Petroleum Volatile Organic Compounds (PVOCs), using U.S. EPA Method 8260B; and lead (total), following U.S. EPA Method 6010C. Samples of unconsolidated materials collected from the boring completed on the northwest side of the Site will only be analyzed for VOCs, using U.S. EPA Method 8260B.

A temperature blank will accompany each sample shuttle sent to the laboratory. Samples collected for laboratory analysis will be placed in laboratory-provided sample containers, placed on ice in a cooler, and sent via courier to a State of Wisconsin-certified laboratory for analyses.

Drill cuttings not collected for analysis will be placed in steel 55-gallon drums, covered, labeled, and stored in a centralized accessible location on Site for future pickup and disposal at an appropriately licensed landfill. Detailed WDNR boring logs, using Form 4400-122, will be prepared. WDNR borehole abandonment forms will be completed for borings not completed as a monitoring well.

3.2 Groundwater Investigation

Five (5) ch. NR 141-compliant, 2-inch-diameter groundwater monitoring wells and one (1) temporary well are anticipated to be installed on Site. Four (4) of the ch. NR 141-compliant wells are proposed to be installed in areas where the former gas station was positioned, on the east side of the Site, and one (1) ch. NR 141-compliant well and a temporary well are proposed to be installed near the building, to assist in evaluating the source and extent of TCE impacts to groundwater, if any. The proposed monitoring well locations are shown in Figure 2.

The 2-inch-diameter monitoring wells will be installed by drilling 8-inch-diameter borings using hollow stem augurs to approximately 7 to 8 feet below the water table. The monitoring wells will be constructed by inserting a 10-foot-long by 2-inch-diameter PVC well screen, with an appropriate length, flush-threaded PVC riser pipe, into the open central part of the augur string. Appropriately-sized sand pack material will be poured into the annular space between the augur string and the well screen, as the auger string is removed from the boring. This action will continue until the sand reaches a level approximately one foot above the top of the well screen. Approximately one foot of fine sand will be placed on top of the sand pack material, followed by bentonite chips to near the ground surface.

The temporary well will be installed in a 3-inch-diameter boring after completion of sampling of unconsolidated materials. It will consist of a small-diameter PVC screen and riser inserted directly downhole. The outside of the well screen will be covered with sand prior to development and sampling. The well will be removed, and the boring abandoned, after completion of collection of a groundwater sample.

The 2-inch monitoring wells will be completed as flush mounts, or above-grade with protection, depending on the specific location. Steel flush-mounted well boxes with bolt-down covers will be installed in areas of high traffic. Steel above-rade covers with locking hasps will be installed in areas without high traffic, for future ease in locating the wells. In all cases, an expanding rubber well cap will be installed inside each PVC well riser, and the protective casings will be cemented in place, to prevent tampering.

At the conclusion of monitoring well installation activities, the newly-installed monitoring wells will be developed by bailing/pumping to remove the effects of drilling, including sediments and sand pack particles that may have breached the well screen. Development includes surging the wells and removal of sediment-laden water, with the goal to produce as sediment-free water as possible, and to provide groundwater samples representative of local conditions. Purged water will be retained in steel 55-gallon drums, stored on Site to await future disposal. Detailed well construction and development reports, as required by the WDNR, will be prepared and included as attachments to the Site Investigation Report.

The static depth to groundwater will be collected prior to development and sampling. The collection of the depth to groundwater will be used to evaluate the direction of unconfined groundwater flow and gradient. The measurements will be collected by inserting a battery-operated portable water level meter probe, with electric water level indicator, into the wells. Measurements of the depth to water will be made to the nearest 0.01 feet.

Groundwater samples will be collected from the newly-installed 2-inch-diameter monitoring wells after measurement of the depth to water and total well depth. An InSitu AquaTroll 500® multi-parameter water quality analyzer and flow cell will be used to monitor water quality parameters during pre-sample purging, using a U.S. EPA-developed low-flow sampling technique. Groundwater will be purged from the wells using a Geotech® Model 900-1290 peristaltic or comparable pump. Groundwater samples will be collected directly from the pump tubing, after the tubing has been disconnected from the InSitu AquaTroll 500® flow-through cell and after water quality parameters have stabilized. Samples collected for lead will be filtered using an in-line 0.45-micron filter. Groundwater samples will be collected directly into labeled laboratory-provided sample containers containing the proper volume and type of preservative, placed on ice in a cooler, and sent to a Wisconsin-certified laboratory for analysis.

Based on WDNR requirements for initial sampling of monitoring wells and the previous identification of lead in the vicinity of the former gas station, groundwater samples collected from the monitoring wells will be analyzed for PAHs following U.S. EPA Method SW-846 8270D, VOCs using U.S. EPA Method SW-846 8260B, and lead (dissolved) by U.S. EPA Method 6010C. The groundwater samples will be submitted to the laboratory on ice and under standard chain-of-custody protocol. A trip and temperature blank will accompany the groundwater samples in each sample shuttle.

3.3 Hydraulic Conductivity Testing

A hydraulic conductivity test will be completed on one or more monitoring wells using a slug test. This test involves the withdrawal (slug-out) of water from the well of a known volume (slug), causing displacement of a known volume of water. The rate at which the water level recovers to its static level will be measured, using a pressure-sensing transducer. The data will be analyzed by the methods developed by Bouwer and Rice (1976) and Bouwer (1989) to determine the hydraulic conductivity. This information will be used to determine the groundwater velocity near the Site. The Site Investigation report will include raw data and calculations to determine groundwater velocity.

3.4 Monitoring Well Surveying

The elevations of the monitoring wells will be surveyed relative to a City of Kenosha datum (to be determined), per WAC ch. NR 141. Both the ground surface and top of PVC casing at the monitoring wells will be surveyed using a Topcon® laser level. The surface elevations of the wells will be measured to within 0.01 feet. The physical locations of the wells will be measured from relative landmarks on Site, and placed on a map meeting the requirements of WAC ch, NR 716.

4.0 REPORTING

The sampling methods used, and laboratory and field results, will be discussed and summarized in a written Site Investigation Report. The report will meet the requirements of WAC ch. NR 716 and include GPR findings; boring logs; monitoring well installation and development documentation; copies of the laboratory reports; tabular summaries of analytical results for soil and groundwater, which will compare the results directly to state standards; figures depicting the Site location and sampling locations relative to pertinent Site features; cross-sections and cross-section locations; hydraulic conductivity data and calculations; and a groundwater contour map. The text of the report will include sampling methodology, a discussion of the findings, conclusions drawn from the data, and recommendations relative to the findings.

A copy of the report will be uploaded to the WDNR through the WDNR RR Web Portal, to be posted on the WDNR's Bureau of Remediation and Redevelopment Tracking System (BRRTS) website.

5.0 SCHEDULE

Fieldwork, including the GPR investigation, drilling and sampling, is expected to start in January 2023. Boring and monitoring well installations are expected to be completed in two (2) days; monitoring well development and surveying in one day; and groundwater sampling and hydraulic conductivity testing in one day.

Soil and groundwater sampling results will be available for consultant review approximately 10 working days after receipt of the samples by the laboratory. A review and tabulation of the soil and laboratory data, assembly of a groundwater contour map and other relevant figures, and the preparation of a written report, prepared as required under ch. NR 700 of the Wisconsin Administrative Code, will be completed by Hyde, approximately 2 to 4 weeks after receipt of the laboratory reports.

In the event additional investigation/sample collection is necessary to identify the source(s), magnitude, and extent of the impacts, a revised timeline will be provided.

FIGURES

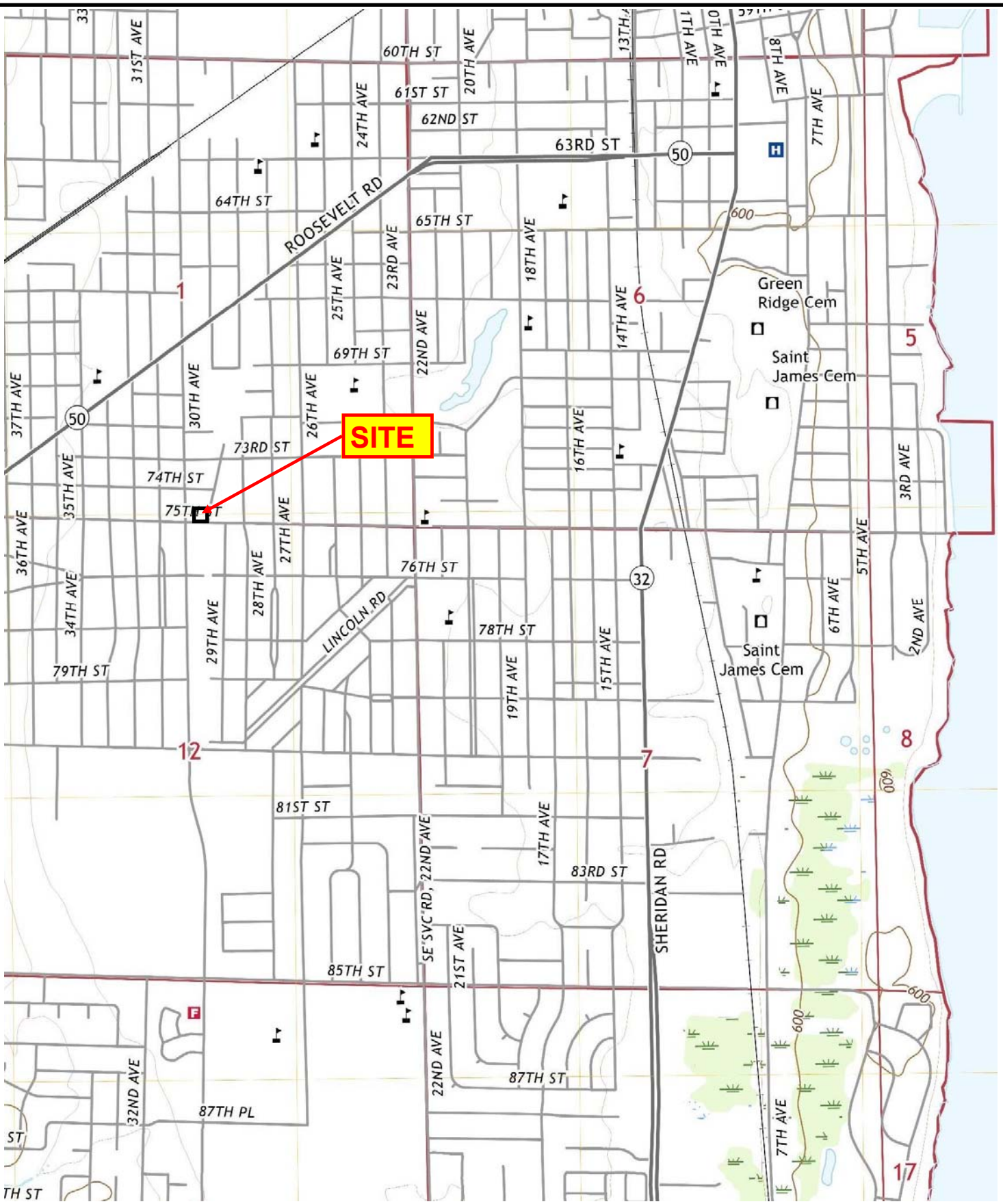

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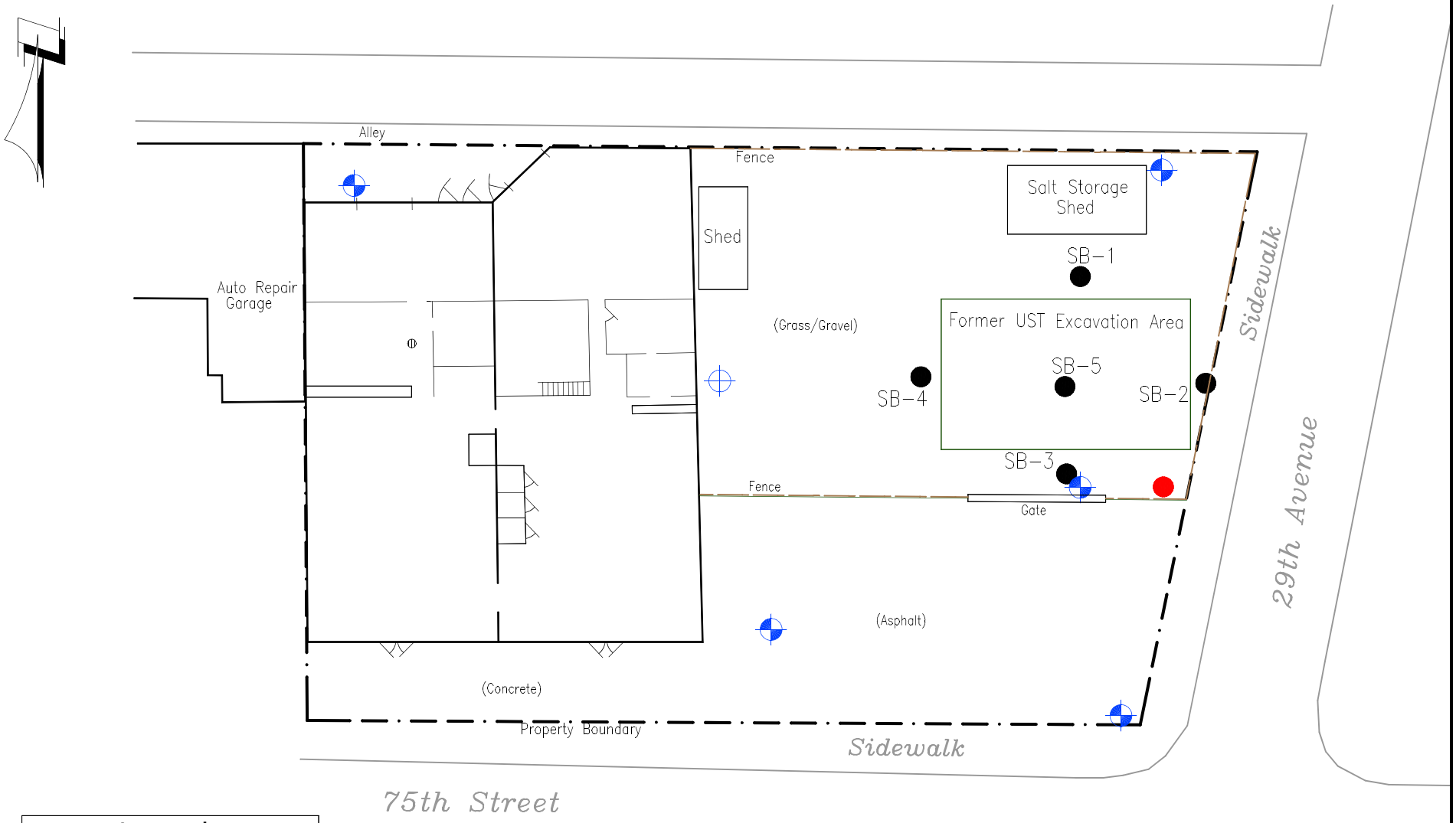
FIGURE 1

SITE LOCATION MAP

Ruffolo Property
2926/2930 75th St.
Kenosha WI



Legend

- Soil Boring (Phase II)
- Proposed Soil Boring
- Proposed Monitoring Well
- Proposed Temporary Monitoring Well

0 30'

SCALE

HEI

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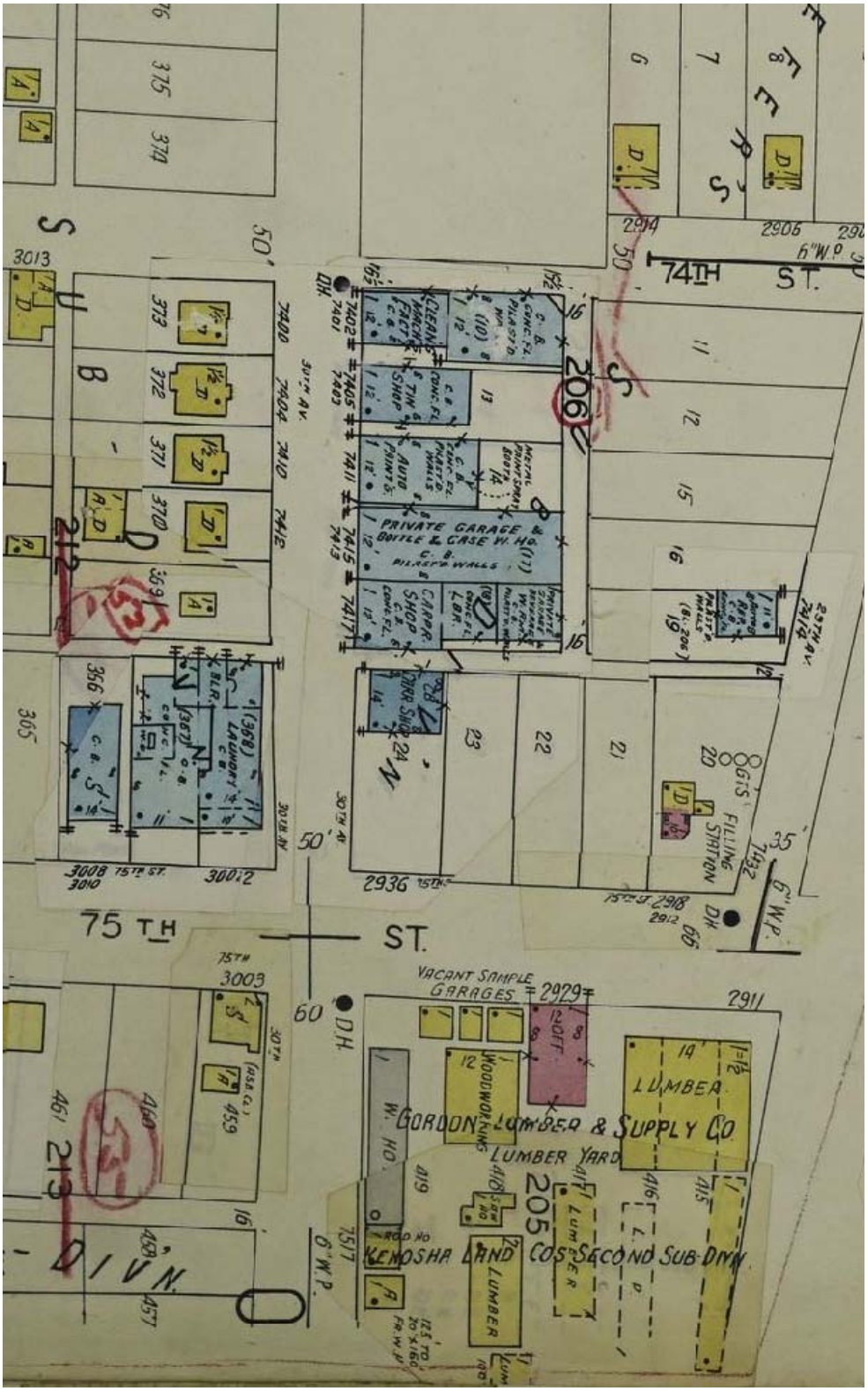
Figure 2

Site Layout and Proposed Sampling Locations

Ruffolo Property
2926 and 2930 75th Street
Kenosha, WI

ATTACHMENT

1949 Sanborn Fire Insurance Map


74TH ST.
75 TH ST.
PRIVATE GARAGE
CAPPR SHOP
GAS FILLING STATION
VACANT SAMPLE GARAGES
LUMBER
GORDON LUMBER & SUPPLY CO
LUMBER YARD
KENOSHA LAND CO'S SECOND SUB DIV
205
206
212
213